GREENWorks

Ideas for a Cleaner Environment

A publication of the New Hampshire Department of Environmental Services, Concord, NH (603) 271-3710

February 2014

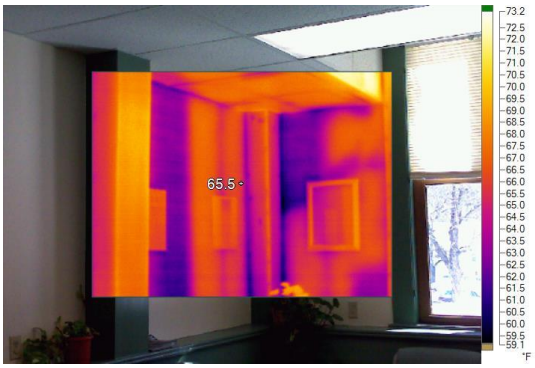
My light bulb will outlive me – and other important benefits of energy efficiency

By Laura Richardson, The Jordan Institute

When our ceiling fan's 13-year old compact fluorescent light bulb dimmed and then died, my husband and I looked at each, and cheered. By replacing it with a LED light bulb, we knew we'd further reduce our energy load. We also both realized that we would never again have to drag the ladder out to change that bulb, ever.

It's remarkable – and a little disturbing – to realize a light bulb has a longer life expectancy than my husband or me, both middle aged. With our current habits of using that light less than an hour a day, we can expect it to last about 70 more years. Even if we halve that, we'll surely be in a nursing home or have a nephew scale the ladder for us when that bulb needs to be replaced. Other benefits beyond the advertised 25,000 hours of use include great color and brightness, mercury-free components, and a shape that comfortably fits in the light fixture.

Replacing a lightbulb is just a symbolic step compared to the scale of energy improvements we need to make in all building sectors. More comprehensive energy efficiency projects include airsealing and insulation, upgrades to heating, cooling, and ventilation (HVAC), lighting, distribution and controls of more sophisticated HVAC systems, domestic hot water systems, plug-loads, and appliances. Candidly, New Hampshire's building stock hemorrhages energy – we waste well over a third of what we buy for energy. Many buildings could realistically reduce their energy use by 50%. What happened to Yankee frugality?



The purple sections in this thermal imaging photo show cold temperature readings where whole sections of insulation are missing from the wall. This building in Concord is less than 20 years old and is fairly representative of the challenges we face.

Having endured multiple cold snaps this winter, heating systems strained to keep us warm. The electric grid fought to deliver power to everyone who needed it. Such are supply and demand market forces. Energy costs skyrocketed, people were uncomfortable, and economically we all suffered. Air leaks and buildings with poor insulation, and wasted energy in aggregate, were a big part of the problem.

Natural gas pipelines struggled to deliver all that was requested by electricity generators, industrial users, and buildings for heat. Pipeline capacity was maxed out. Gorham Paper and Tissue laid-off staff because of exorbitant spiking natural gas costs. Other industrial users of energy complained quite loudly because their business plans did not prepare them for such dramatic price fluctuations. Logistical issues at Fred Fuller Oil and Propane were exacerbated by the cold snap panicking customers who expected more timely fuel deliveries. Propane costs are now soaring because of system-wide demand and unanticipated industrial agricultural needs during autumn in the Midwest. Our electric and gas rates will surely reflect these spikes as the utilities seek to recover their costs from this season.

There is a direct connection between cost-volatility for industrial users of energy and demand spikes from other sectors. Improving the energy performance of residential, municipal and commercial buildings means less energy needed to flow through pipelines, transmission lines and fuel trucks – in many cases a 50 percent reduction of energy use is quite feasible. This in turn reduces energy demand system-wide, and thus reduces energy prices for everyone. Energy efficiency means that we are less vulnerable to cold snaps, heat waves, and disruptions in energy supply. It means that we are more physically comfortable and our economy is more resilient. It means that we emit far fewer greenhouse gases.

Energy efficiency should be considered an energy resource in New Hampshire. If we can better manage energy use, we don't need to expand energy capacity. In many cases, it is less expensive to "buy" energy efficiency than to buy the energy itself. "Least-cost procurement" is a Yankee attribute and we would all benefit if this was incorporated into our utility regulations and energy practices.

Like the light bulb in our ceiling fan, once we fix the problem for the long-term, we can all enjoy the benefits – reduced costs, convenience, and comfort.

# # #